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Pacific Asia Conference on Information Systems (PACIS)

6-18-2013

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THE DEMOCRACY CUBE AS A FRAMEWORK FOR GUIDING PARTICIPATORY PLANNING FOR COMMUNITY-BASED IT INITIATIVES

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Abstract

Literature suggests there is a need to build more theoretically-informed understandings of the social processes implicated in participatory IT planning and implementation (Jakku & Thorburn, 2010). In this study, we explore the value of Archon Fung's (2006) "democracy cube" as a framework for qualitatively examining the process we undertook for planning a community-based IT strategy. Our planning process involved consultations with multiple stakeholder groups across five different communities, as well as from other entities involved in disaster management, with the aim of surfacing factors that shaped local communities' abilities to participate in disaster management activities. These factors, drawn from qualitative interviews and categorized using a SWOT framework, were subsequently translated into an IT strategy. In this paper, we revisit this process and examine it using Fung's (2006) three dimensions of democratic participation as a lens: participant selection (our use of multiple stakeholder groups); communication and decision (our consultation process); and authority and power (how participant input drove our strategy). We use the framework to identify the specific practices that made IT planning participative, as well as those that made it nonparticipative. We also use our empirical data to explore ways that the framework can be enhanced.

Keywords: participation, participatory IT planning, discourse analysis

1 INFORMATION TECHNOLOGY AND PARTICIPATION

Information technology in its diverse forms has largely been understood as a force that supports participation. Researchers and practitioners have explored how IT tools promote open, democratic debate, allow for multiple perspectives, and increase access to information (Rheingold 1993; Nye et al. 1997; Putnam 2000). Various forms of IT, in particular the Web, offer ways to challenge authority, increase democracy (Warf & Grimes 1997), decentralize decision-making (Dewett & Jones, 2001), and facilitate self-organizing communities (Ross 2007). They also represent a potential medium of resistance against dominant groups as, for example, the case of the Zapatista insurgency – a revolt against the Mexican government and the Free Trade Agreement – where 40 web sites were set up to support the Zapatista cause (Warf & Grimes 1997). In this way, IT tools provide the means by which individuals can not only voice out their opinions, but go so far as to challenge authority by producing "counter texts" (Hardy & Phillips 2004) that repudiate dominant meanings and provide alternative ones (Ho et al. 2002; Hogan & Greene 2002).

Over the last few decades, the pool of IT-based participation tools available has expanded considerably. For example, input from participants can now be easily captured from various media (SMS, mobile applications, social networks), can be parsed and mined, subjected to sentiment analysis, categorized in diverse ways, mobilized to generate trends in opinion, and summarized through innovative categorization and visualization techniques. Interactions between participants in the context of debates, consultations, and impact assessment as well as policy-making sessions can now be captured in all their structural complexity using tools like argument visualization techniques (Benn & Macintosh 2011; Wyner et al. 2011). Accompanying the emergence of new tools is the formulation of models that allow stakeholders to scrutinize how extensively IT interventions promote participation, for example whether they information dissemination, consultation, or active participation (Macintosh 2004).

While IT has therefore had a long history of facilitating participation, the process of developing IT tools has, ironically, not been characterized as democratic. For example, IT systems development has, at least in the past, been characterized by limited stakeholder input, and has been driven primarily by technology specialists. The participation of other stakeholders such as users has been limited to specific inputs at predefined points of the development process. There are now shifts that indicate that this might be changing: new team-based approaches such as joint application development, rapid application development, and agile methods are all arguably trends towards increasing participatoriness in developing IT solutions, in that they all involve increased, and arguably more meaningful, user involvement (Shelly & Rosenblatt 2012). However, participation dynamics are complex and multifaceted, involving the exercise of power by diverse stakeholders on different levels, in visible and invisible ways (Hardy 1994). Due this complexity, it can be argued that simply involving users at more stages of the IT development process may or may not actually translate into more participative IT development processes. There is therefore still the need to explore, in ways that are theoretically informed, the social process implicated in participatory IT planning and implementation (Jakku & Thorburn 2010). If we can systematically identify specific practices that make IT planning participatory and nonparticipatory, using conceptual tools as a sensitizing device, these could contribute to the practice of making participatory IT planning a norm, and could facilitate the creation of practitioner tools like checklists and evaluation forms that could guide the planning process in concrete ways. Having said that, it is also important to note early on that participatory IT planning is not without challenges: it can require significant investment in time and in educative efforts in order to be effective, and such "democratic" processes may not actually be meaningfully participative if they replicate larger societal inequalities (Sanders 1997).

In seeking to understand participatory IT planning, it is useful to draw on the field of governance, which has a large body of work that seeks to understand participation in concrete yet theoretically informed ways. We therefore draw from this field in analyzing the process we used for planning a

community-based IT strategy. The IT strategy sought was one that would empower local communities in ways that would allow them to take part in more meaningful ways in disaster management activities.

2 THE DEMOCRACY CUBE

There are a number of models for participation that could potentially guide our analysis of participatoriness in planning a community-based IT strategy. One model by Macintosh and Whyte (2008) evaluates the participatoriness of initiatives based on predefined democratic criteria such as representation of citizens in a given project, engagement of participants, and transparency. A second model suggests that participatoriness can be assessed depending on the level at which citizens are engaged: as mere recipients of information, as parties that are consulted, or as active participants that co-own a decision (Macintosh 2004). The first model is useful in that it breaks down the issue of participation into specific attributes and provides definitions for these, while the second explores how participation can be achieved through different degrees of citizen involvement. However, for this study, we have chosen to mobilize a framework by Archon Fung (2006) known as the democracy cube, for reasons explained later.

The democracy cube (Fung 2006) is a framework of participatory governance built on the assumption that participation has three dimensions: who participates (an issue of participant selection); how these participants exchange information and make decisions (an issue of communication and decision-making); and how their inputs are linked to outcomes (an issue of power and authority). The democracy cube is shown in Figure 1.

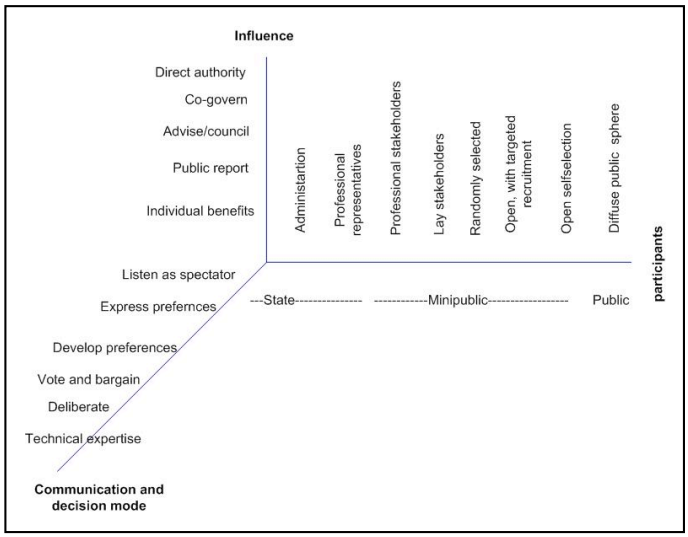

Figure 1. Fung's (2006) democracy cube.

There are a number of important characteristics about this framework, four of which are highlighted here. First, the model unpacks the ideal of participatory democracy across three dimensions, but does not explicate connections between them, hence one can argue that these three dimensions are, as far as the framework is concerned, independent of one another. Second, each dimension (participant selection, communication, power and authority) is linked to a spectrum of values. Participant selection, for example, is shown as ranging from more inclusive to more exclusive arrangements; communication and decision-making range from most intense to least intense, and power and authority range from most authority to least authority. Third, each spectrum shows a variety of arrangements characteristic of different points in the spectrum. Based on the framework, for example, participant

selection from the "diffuse public" is seen to be the most inclusive arrangement, whereas selection limited to experts is least. Finally, while the framework presents democracy as an ideal, it does not suggest that all issues should always be addressed by the "most" democratic arrangements. Instead, it is meant to present the wide range of arrangements available in governance, with the idea that different arrangements can be combined to achieve democracy (Fung 2006).

Fung's (2006) model, we argue, has a number of distinct advantages over the two previous models. First, while the two other models articulate values that unpack democracy and participation, along with clear and useful definitions of these values, we believe that the democracy cube provides not just clearly-defined values but also concrete instantiations of these, which makes them readily observable in empirical settings. Put another way, the framework is founded on "proximate" values instead of highly abstract concepts, which makes operationalizing the model (for example into more concrete evaluation criteria) a more feasible task. Second, we believe that the democracy cube is capable of capturing greater complexity in democratic arrangements in at least two ways: it conceptualizes participation using a three-dimensional framework (rather than a one dimensional one ranging from information to active participation), therefore allowing for greater diversity in terms of participatory arrangements, and it moves away from the notion that more participation is always better.

Drawing on the features of the democracy cube, we therefore seek to address the following research question: *What is the value of the democracy cube in analyzing the participatoriness of planning a community-based IT strategy, specifically in terms of (a) who participates; (b) how participants interact; and (c) how inputs can influence outcomes?* By moving iteratively between the framework and data from our study, we surface insights on our IT planning process as well as on the framework itself.

3 OVERVIEW OF PLANNING PROCESS FOR A COMMUNITY-BASED IT STRATEGY

To address the research question, our research team used the democracy cube as a means for qualitatively evaluating the team's own approach in planning an IT strategy that was meant to enhance participation of local communities in disaster management activities. Disaster management is a young field that has nevertheless been given increasing global attention, one indicator being the United Nation's designation of the 1990s as the International Decade for Natural Disaster Reduction. Disaster management has been deemed critical in that a single disaster can have far-reaching negative implications, ranging from loss of life to painful setbacks in economic development (UNISDR 2005). In more recent years, the role of IT in managing disaster has been increasingly explored. For example, the United Nations has used sophisticated visualization techniques to carry out crisis mapping, in order to better respond to the impact of disasters like typhoons (Fung 2012). Large organizations like Microsoft have developed mobile applications that support communication, monetary donations, and even donations of goods during emergencies (Ionescu 2013). In this study we explore how the process of planning such IT-based community based interventions can be made more participative.

Our larger research project was carried out in the context of a qualitative case study. A case "a specific and bounded (in time and place) instance of a phenomenon selected for study" (Schwandt 2001, p. 22). It involves the detailed examination of a person, a process, a group, an event, or some other unit of analysis, usually within its real life context (Abercrombie et al. 1984; Yin 1989; Schwandt 2001), and focuses on "understanding the dynamics present within such settings" (Eisenhardt 1989, p. 534). Our bounded focal system in this case was the "barangay", a local term that refers to the smallest governed unit. It is simply referred to as the local community for the rest of this paper.

Data was gathered primarily through interviews of individuals and groups. Document reviews were also carried out to fill specific gaps. A total of 30 people were interviewed, with interviews ranging from 40 minutes to over two hours. These were recorded in audio and video format. Key interviews

were fully transcribed; others (for example, those that were later established to contain mostly data that overlapped with previously transcribed interviews) were summarized.

Transcriptions and summaries were then analyzed using discourse analytic techniques. Discourse analysis is a qualitative methodology that explores how social phenomena are captured in texts. It is also concerned with the social and historical contexts of these texts, and often involves examining the process by which these texts are produced and consumed (Hardy et al. 2004). As opposed to approaches that simply count the frequency of occurrences of specific words or phrases, discourse analysis seeks to explore deeper meanings associated with texts by linking them to their socio-historical situations. For example, a statement like "we are waiting for government to give us their disaster plans" can be interpreted against a bigger picture informed by knowledge about a community's culture. Understanding that the speaker comes from a hierarchical, paternalistic culture will shape interpretations in discourse analysis.

Data analysis was carried out as follows. We examined the data gathered from various interviewees and initially detected that their inputs could be roughly classified into factors that enabled as well as hindered empowerment in disaster management. As we progressed with the analysis, we found that this categorical scheme could be refined even further. The process of refining the categories involved constant comparison, a process wherein the researcher attempts to "'saturate' the categories --- that is, to look for instances that represent the category and to continue looking…until the new information obtained does not provide further insight into the category" (Creswell 1998, pp. 150-151). As our categories stabilized we eventually found that the framework with the most robust explanatory power for the data was a SWOT (Strengths, Weaknesses, Opportunities, and Threats). That is, the factors that shaped empowerment in disaster management in local communities could be attributed to enabling/ disabling factors that were external (opportunities and threats) as well as internal (strengths and weaknesses). It is important to note that we did not "choose" to impose the SWOT framework – our iterative examination of the data allowed us to categorize these in certain ways, and we found that the SWOT framework was a categorization scheme that robust explanatory power for our data. As with all qualitative studies, other researchers could arguably come up with different, but equally valid, interpretations and frameworks.

Once our data analysis had been completed, we then used our SWOT analysis as our basis for creating our community-based IT solution, in effect translating the SWOT analysis into IT needs then into an IT strategy. The IT strategy centered on the mobilization of SMS as a means to elicit bottom up input, but was combined with capacity-building strategies that included educational and financial support. We explore this process in greater detail in the next section, as we do our analysis.

4 FINDINGS

We revisit this planning process in order to address the three questions raised earlier (who participated, how did they communicate and decide; how did they influence outcomes). Each of the three questions is discussed in Subsections 5.1 to 5.3. Each subsection starts with a summary of the relevant dimension of the democracy cube and its possible application to IT planning. This is followed by a deeper explanation of our planning process with respect to each dimension. We then conduct a qualitative assessment of our approach, identifying the specific practices that made our process participatory as well as nonparticipatory, using the democracy cube as a lens to sensitize us to these practices. We conclude each subsection with insights can be discerned for the framework based on our study.

4.1 Dimension 1: Participant selection in IT planning

One dimension that shapes participatoriness (in governance generally, and in IT planning specifically) is the issue of who has a say in the process. Fung (2006) therefore describes various methods of

participant selection, ranging from more exclusive arrangements that only include members of the state (experts or elected representative), to more inclusive arrangements that are open to all. Between these two extremes are arrangements involving minipublics (professional stakeholders, lay stakeholders, random selection, and open self-selection). In undertaking planning for an IT initiative, the extreme exclusive case would involve IT strategic planning by a closed group of experts creating a canned solution which is then given to the user community. In contrast, agile methods arguably can be positioned as an arrangement that included "lay stakeholders" or "professional stakeholders". In our case, we propose that our position on the spectrum involved the position of open, targeted recruiting, considered one of the more inclusive arrangements, but still with limitations.

4.1.1 Who participated in the IT planning process?

Open, targeted recruiting involves a process where input can be gathered from all, but mechanisms are set in place to ensure that representatives are drawn from sub-groups that are less likely to engage (Fung 2006). In our case, data gathering involved five communities. We issued requests for interviews from local officials, but we kept the process open by telling officials that they were free to bring in other interviewees. No restrictions were placed in terms of who could be invited to the interview. Our only rule was to ensure that community members without any formal positions were included, because such individuals tend to be overlooked in consultation processes.

All five communities tapped were considered "depressed" or "marginalized", hence extremely challenged in terms of resources (but later we found that they had different ways of addressing this issue). They were all located in different parts of the country. We interviewed a total of 30 people for our IT project. These included community members and local officers. We also interviewed people from outside the local community setup, to ensure that a broader picture of the disaster management arena could be captured. Our interviewees therefore included housewives, cleaning committee heads, representatives from city governments, a national-level Red Cross governor, and professionals in the extension units of universities doing outreach in local contexts.

This being a qualitative study, we were not driven by representative sampling, but by theoretical sampling. We sought diversity in the pool of respondents not just by targeting multiple communities but also by targeting people who were linked to the communities in different capacities, but we did not impose a requirement wherein we would have a specific number of representatives from each of the entities defined. Up to a point, we also used the snowball technique: the mention of the Red Cross by an interviewee triggered an interview with a Red Cross official. Consistent with theoretical sampling, we gathered data until we reached theoretical saturation.

4.1.2 Findings based on the framework (lessons learned)

Our approach for participant selection in IT planning involved "open, targeted recruiting" because we requested interviews with local community officials (targeted), who then extended the invitation to community members (open). This pool was also extended using the snowball technique.

Based on the framework, we conclude that our approach for participant selection involved at least two participatory practices. First, *we moved away from expert-driven approaches of information technology planning.* A number of members of our research team had advanced degrees in computer science and information technology, and had access to a vast repository of possible solutions to promote community empowerment. These team members had considerable expertise that could allow them to recommend a solution in a top-down manner. Nevertheless, a decision was made not to take this approach, and to attempt instead to understand stakeholder needs using a more bottom-up approach. We invited participants to interviews without considering whether or not they had any technical expertise. Our assumption was that they did not have to know about technology to make a meaningful contribution to IT strategy. We simply sought out their stories (or, as later labelled,

"testimonies") about disaster management. As we explain later, we would move from their broad inputs to a specific IT strategy later.

A second participatory practice was that *we moved away from more narrow connotations of "users" as well as "user requirements".* We did not ask for user requirements, in the sense that questions were not directly framed as queries on technological solutions (we explain this in the next subsection). Also, we did not limit our interview pool to "future" system users. Widely accepted practice involves the traditional notion of users being defined as people from the entity under consideration, in this case the local community, with the understanding that their needs were the end goal of the system development process. This is common, and can be useful. However, one limitation that this would pose for us was that, in our situation, future community users might paint a narrow picture. They themselves did not seem to be fully aware about what their options were in terms of addressing the issue of lack of empowerment. Community members' responses indicated they had become restricted in terms of their views on new and innovative solutions, due to a combination of social factors (dependence resulting from a patriarchal culture), economic factors (always being told that there was no money for new tools), and by political factors (bureaucratic arrangements that made government seem unresponsive to their requests). We made sure we elicited these community members' views, which surfaced mainly constraints, and we noted that these constraints in themselves were valuable findings. However, we also wanted to avoid the possibility of limited viewpoints[1], so we sought to expand the range of inputs in two ways: we tapped multiple communities, and we tapped key stakeholders from the so-called external environment.

There is one practice in our IT approach that could be classified as nonparticipatory. Quantitative researchers may argue that *our interview pool of 30 may have to be expanded in order to make our findings more robust.* This is an ongoing debate between qualitative and quantitative researchers that we do not attempt to resolve here. What we can mention, however, is that our findings can definitely be enriched by having "background" data gathered from what Fung (2006) calls a more diffuse public sphere. One possibility the team is considering for future projects, then, is to support qualitative research findings with more broad-based data captured from a systematically recruited panel of respondents, a panel that will be created through a process of selection, screening, evaluation, and testing before it is finalized as a long-term source of regular information on disaster management. We are already exploring partnerships that will result in systematically setting up a panel of 1200-2400 representative citizens who will be formally recruited to be regular contact points over a two-year period on issues of disaster management, including but not limited to IT solutions needed for prevention and mitigation. We will sustain this network by providing support that will allow them to provide regular input via SMS, and these in turn will be processed through language technologies into different disaster management reports. The arrangement should support broad-based participation, allowing for inputs that can be studied longitudinally.

4.1.3 Future considerations about the framework

One assumption that is captured in the democracy cube is that "randomly selecting participants from among the general population is the best guarantee of descriptive representativeness" (Fung 2006: 67-68). This seems to suggest that participatoriness is a function of statistical (either random or stratified) sampling. As we discussed above, we seek to achieve this in the future through a panel. A question that arises, however, is: can the goal of representativeness be achieved in some form even without such statistical sampling, given that statistical sampling can be difficult to achieve? Put another way, is there a way to obtain representativeness in inputs without having to gather large numbers of

[1] In characterizing these viewpoints as limited, we do not imply that these are wrong. It simply means that a community member may be unaware of developments in the disaster management arena, and inputs may be shaped by this lack of awareness.

respondents? This was a concern in our case, because there were many factors that made it challenging to gather large numbers of people. Our research designed prioritized detailed, qualitative data, which we felt could be best obtained by engaging with disaster management respondents in their natural environments. This meant physically travelling to different communities. This in turn raised financial and logistical requirements that make multiple community visits difficult. The concern, therefore, is whether the outcomes of participatoriness can be achieved even when a project is constrained to limited case sites.

Flyvbjerg (2004) suggests that this is possible, through the careful selection of what he calls "critical" cases. The strategic selection of a case can lead to generalizability, in that they allow logical deductions in the form "If this is (not) valid for this case, then it applies to all (no) cases" (p. 426). In the context of our project, finding an IT solution that will nevertheless "work" in an extremely poor community with limited funding and almost no connectivity, may lead us to conclude that this solution will also be feasible in better-off communities. In effect, involving participant selection from the domain of a small but critical case site might achieve the same outcomes as more widespread selection methods. Going back to the framework, this means drawing from participation from a "minipublic" (for example because of financial limitations) may arguably provide results that are as robust as drawing selection from the more diffuse public sphere.

Once inputs are drawn from a critical case, there may also be other ways to gauge if participation from a small group has captured representativeness. In our case, our 30 interviews allowed us to reach theoretical saturation: later interview data were beginning to confirm what had been found in earlier interview data. Second, we had also managed to secure interviews from people who were in the entities that were "hubs" of activity. We can conclude, then, that we captured many of the core interactions and issues with respect to our domain. Third, our data was comprehensive enough for us to surface overlaps and contradictions, as well as explanations for overlaps and contradictions. For example, when a local community interview surfaced a complaint that the mayor's office did not have money, and an interview of city-level officials seemed to contradict this, we had enough context information that explained that interview A and interview B were coming from different cities which had been given different budget allocations due to exceptional circumstances. We therefore knew which conditions to evaluate as typical as well as atypical.

In short, future studies may wish to explore the extent to which the spectrum of arrangements explicated in the democracy cube (state, minipublics, public sphere) can be modified to accommodate insights from strategic case selection, which may show that minipublic participation may actually be more participatory than the way it is presented here.

4.2 Dimension 2: Communication and decision-making in IT planning

A second dimension of participation is the quality of interaction among participants. Fung (2006) describes the second dimension as the way that participants exchange views on a specific issue, with interactions ranging from least to most intensive. The most intensive arrangements are those that require investment, knowledge, and commitment from participants. Venues where participants simply act as passive spectators are considered least intensive. More intensive arrangements allow participants to aggregate their choices, bargain, and (the democratic ideal) deliberate. In the case of formulating a community-based IT solution, least intensive arrangements would mean a community being "told" about a new IT solution that has been developed. On the other hand, agile approaches where members are invited to deliberate with developers on the nature of the solution needed may be considered as one of the more participatory arrangements involving lay or professional stakeholders (Shelly & Rosenblatt 2012). In our case, our process can best be characterized as one of aggregating interests (Fung 2006), through a process of consultation (Macintosh 2004). This arrangement is almost squarely in the middle ground, halfway between least and most intensive.

4.2.1 How did our participants communicate and make decisions?

Much of the patterns of interaction that took place in this study were in the contexts of individual and group interviews. Interview questions were broad-based ("Tell us about your disaster management activities"). They were deliberately framed to elicit stories or "testimonies" about disaster management. Almost no reference was made to technological objectives. This was because as researchers, we wanted rich data on the context, preferring to open up discussions to include a broad variety of considerations rather than narrowing too early by focusing on a technological agenda. Most interviews were conducted one-on-one. A few were conducted as group interviews (not as focus groups were people would build on one another's inputs). We emphasize this to show that interactions were primarily between interviewer and subject. This means that inter-participant deliberation did not take place.

4.2.2 Findings based on the framework (lessons learned)

We will mention at the outset here that our position on the democracy cube seems to be best captured by aggregation (without bargaining). However, to capture the nature of participant interaction more fully, it is also helpful to characterize it as being a process of consultation. Macintosh (2004) describes consultation as a level of participation (between information and active participation) involving a two way-relationship, for example between a government entity and citizens. In the case of governance, consultation takes place when government sets the agenda, but citizens are allowed to give input. This is different from government simply pushing information at citizens, as well as the other extreme wherein government and citizens are co-equals in agenda-setting as well as in decision-making.

Drawing from Fung (2006) and Macintosh (2004), then, we assess that the process that the IT planning process we employed involved both consultation and aggregation. It is characterized by three participatory practices. First, while the research team had an (undisclosed) agenda of formulating an IT plan for community disaster management, *interviewees were asked to provide input with respect to this agenda,* in the form of responses to questions. A second point that we feel made the process participatory is that *the agenda was kept very loosely defined* by making no reference to user requirements or technological solutions, which in itself is an enabler of participation. In their classic work, Bachrach and Baratz (1962) argue that agenda setting is a critical factor in shaping power and participation dynamics in decision-making (ie, leaving an item out of the agenda is a way of bringing about nonparticipation). Understandably, therefore, the issues that emerged from our interviews were remarkably diverse, including political, economic, social, and resource-based hindrances and facilitators of empowerment. Third, *inputs were aggregated in such a way participant inputs were consolidated, with minimal loss.* The power of constant comparison as a process in data analysis is that it allows for the inclusion of a broad set of data. It did not matter if a statement came from a housewife or a Red Cross official; all were given equal weight and captured in the analytical framework. A categorical scheme was allowed emerge and to evolve to embrace the data. This is in contrast to predetermined approaches that impose categories, forcing force researchers to streamline and hence eliminate outlier data. In this sense, inputs were not lost.

One practice that could be considered nonparticipatory was the fact that *interviewees were not given opportunities to deliberate with one another.* Deliberation involves exchange among participants, leading ideally to consensus. In our case, deliberation would have meant bringing together representatives from different communities, and from different entities, into a forum where they could interact and come to an agreement about IT solutions in their community. We opted for interview-based consultations instead, in no small part after assessing potential tradeoffs associated with more democratic arrangements. The decision to hold one-on-one interviews was made after considering the danger of groupthink that comes to be associated with group interviews, a point that will be discussed shortly. The decision to visit communities one by one, rather than having representatives congregate in

a single location, was made in part because we were concerned with disaster management issues, and therefore wanted to see interviewees in their "natural" environments.

4.2.3 Future considerations about the framework

The idea of having different stakeholders deliberate in the process of coming up with solutions to community problems is widely supported (Sanders 1997). However, it is also important to note that deliberation is controversial, an issue fraught with concerns and limitations. Deliberation can be linked to democratic outcomes only if specific conditions are first met, a primary one being that citizens are prepared to engage with one another as equals. However, contexts for deliberation often become situations wherein wider societal inequalities are simply replicated, hence specific participants continue to have a larger voice than others. In settings such as juries, the privileged position of foreman is more often than not conveyed to white, educated males with respectable occupations and previous jury experience (Sanders 1997). This suggests that deliberation requires, but does not create, a level playing field. Extending this argument to the field of IT planning, one can argue that bringing together a group of stakeholders to deliberate on IT solutions may not necessarily result in democratic debate. Discourses may still be dominated by the technical, the educated, or the vocal participant. In a high power distance cultures (Hofstede 1980), it may therefore be more effective to capture inputs in alternative ways, for example by allowing people to share their stories as testimonies. While deliberation seeks commonality, testimony seeks "the simpler aim to include and represent a fuller range of critical voices" (Sanders 1997, p. 360). This is what we sought to do in our IT planning process, drawing out people's narratives without losing their stories because of dynamics of inequalities that come with deliberative settings. For future studies on the democracy cube, therefore, one may want to explore if other processes (apart from deliberation) can be classified as "most intensive" in terms of decision-making and participation.

4.3 Dimension 3: The influence of participant inputs on outcomes

The final dimension on participation, power and authority, explores the extent to which participant inputs are linked to actual outcomes. Power and authority range from "least" to "most authority". When stakeholders participate in a planning process mainly for personal purposes, but do not expect to shape outcomes in any way, this is a case of "least authority". Participants increase their influence as they move to other arrangements like communicative influence, advising, and co-governance. In some cases, participants actually exert direct authority over specific issues (Fung 2006). In the case of IT planning, a community may be said to have exercised significant authority if it sees its user requirements translated into IT strategy. In this case, our planning process can be characterized as one of "advising", and with some intervention can be elevated to one of "co-governance partnership", for reasons explained shortly. Advising is a middle position, hence it is still marked by significant participatory limitations that we seek to address.

4.3.1 How did our participants influence outcomes?

The question above can be reframed as, how did our participants (interviewees) shape our final IT recommendations? To answer this question, we explain how interview data was used. As we mentioned earlier, interview data was transcribed or summarized, and categories for the data were allowed to emerge using discourse analysis. Our findings showed that factors shaping empowerment in disaster management, gathered from interview data, could be organized under opportunities, threats, strengths, and weaknesses. While an exhaustive list is not needed for this study, we nevertheless show the main findings (that is, the main SWOTs) for illustrative purposes under Table 1 and Table 2 on the next page. The index "O1" means Opportunity #1; "T3" means Threat #3. In the interest of reflexivity, team researchers who did data analysis presented their findings to other team members to keep the

move from data to interpretation as transparent as possible. There are plans to revisit interviewees to see if the SWOTs can be verified, hence something they can "own."

Factors	Opportunities	Threats
Political/ legal factors	[O1] Recently-established partnerships among national volunteer organizations, government, and the private sector to allow more synchronized efforts in aiding communities during disaster	[T1] City government processes require centralization, monitoring, and approval of community-based disaster initiatives, leaving local communities disempowered
Economic factors	[O2] Willingness of key telecommunication players to support disaster management by mobilizing their assets for communities, sometimes for free	[T2] Limitations on disaster management initiatives because of competing economic priorities
Technological factors	[O3] Presence of national-level, as well as free, information resources for disaster management [O4] Widespread use of SMS as a means of communication on national level	[T3] Limitations of specific technologies for disaster management (for example weather data tends to have a six-hour lag) [T4] Push approach in terms of sharing disaster management data
Socio-cultural factors	[O5] Strong sense of commitment to the community amplified by spirit of cooperation	[T5] Widespread acceptance of top-down, paternalistic approaches that see government as "giver" of services and

Table 1. Summary of opportunities and threats.

Resources	Strengths	Weaknesses
Financial	(none noted)	[W1] Constraints in terms of budgets, particularly at community and at individual citizen levels. (Once is a while, specific communities are able to generate funds for disaster management through innovative means)
Human	[S1] Well established volunteer networks (made up of residents or of volunteers from organizations like the Red Cross) Strong sense of "bayanihan" (community spirit)	[W2] Passivity on the part of citizens, who tend to "wait" for government to do something
Technological	[S2] Widespread use of SMS within communities, coupled with resourceful use of "basic" monitoring technologies (graduation systems) in the absence of sophisticated technologies [S3] Recent moves of large telecommunications firms to mobilize their networks for service at the community level ("free calls") during floods	[W3] Lack of access to even basic computer-based systems at community levels
Intangible	[S4] Specific communities' ability to optimize limited resources through innovative best practices	[W4] Lack of knowledge on communication channels and processes when communities wish to convey sentiments to city government (or to other institutions)

Table 2. Summary of strengths and weaknesses.

The data was used to formulate an IT strategy. It is not the purpose of this study to discuss strategy details (our purpose is to explore the planning process), but major elements of the strategy are presented here. The important thing to note is that we sought to address *all* the SWOTs surfaced with the strategy we came up with.

Table 3 shows how the main elements of our proposed IT strategy were collectively meant to address all the SWOTs. If we did this correctly, we could claim that since participant concerns were captured in SWOTs, and SWOTs were addressed by the strategy, then concerns would be addressed by the strategy.

Characteristics of Proposed IT Strategy	SWOTs Addressed
Clearly assign specific data-gathering and reporting tasks to existing community networks (community volunteers, Red Cross volunteers), allowing for input to take place in a bottom up manner	O5, T4, T5, S1, S4, W2
Use SMS as a device for capturing data input that can directly enrich existing data repositories and web-based technological solutions (for example use SMS to quickly feed hazard mapping data to databases of national agencies, as well as to repositories supporting free web-based visualization tools meant to summarize impact)	O3, O4, T1, T3, S2, W3
Provide training for proper use of technologies. Clarify community members' roles in disaster management	O5, W2, W4
Provide financial support (free texts, subsidies for texting services during disaster) to support regular input via SMS by capitalizing on new partnerships between telecommunication firms and Red Cross	O1, O2, T2, S3, S5, W1

Table 3. Elements of proposed IT strategy and how these link to SWOTs.

While the research team had a wide range of possible IT-based disaster management solutions available, the central technological element of our proposed IT strategy was the use of SMS in ways that would allow community members to contribute to real-time status updating and hazard mapping activities. We chose an SMS-centred approach because it was the one that enabled us to address the most SWOTs and, arguably, the most participant concerns. Specifically, an SMS-cantered strategy took advantage of newly formed partnerships between telecommunication firms that had recently taken an interest in disaster management, and it capitalized on the widespread use of SMS in the country (opportunities). It addressed, at least in part, the issue of slow reporting because of having to go through bureaucratic layers, given that it would allow for direct real-time updates in free web-based visualization tools, and it would assist in addressing the lack of real-time disaster information at specific national-level disaster-related centres (threats). The use of SMS was already being mobilized on a community level, through established networks (strengths), and would bypass the lack of computer-based resources and financial limitations at the local government (weakness).

4.3.2 Findings based on the framework (lessons learned)

Based on the framework, this process can currently be characterized as a process of participants "advising" the research team, a midpoint position on the framework. The approach we used incorporated the participatory practice of *translating diverse user input into a multifaceted IT agenda*. As mentioned earlier, we asked broad questions and therefore received answers that could understandably so diverse. It comes as no surprise that findings were best organized using a SWOT framework, which by nature embraces multiple factors. We did not consider this problematic. Since the needs were multifaceted, we took this as a signal to formulate a recommendation that was multifaceted as well: that is, one that provided a technological recommendation, but tailored to fit political, economic, social, and resource-based considerations.

There are two main concerns that could be raised about nonparticipatoriness in this case. First, it can be argued that *inputs could have gotten lost in translation*, and that as we moved from interview data to SWOT analysis to an IT strategy, user inputs may have gotten lost or distorted. Second, it can also be argued that *participants had a voice in framing the agenda (problem) but not the solution*.

There appears to be a single straightforward solution to both, and this involves returning to participants, presenting our data and the process by which it was translated into an IT strategy, and

verifying if the interpretations and solutions formed are valid and thus something that concerned communities can "own." It may be necessary to do this more than once. If subsequent iterations result in a strong sense of communities' owning the SWOTs and the strategy, then our position on the democracy cube could potentially shift from advising, to a more participatory position of co-governance.

4.3.3 Future considerations about the framework

In the case of planning a community-based IT strategy, one thing we learned is the value of creating a recommendation iteratively: obtaining user input, framing a strategy, going back to participants for feedback, refining it further, and so on. This may be consistent with RAD and agile methods of system development. It would be interesting to know how such an iterative arrangement would be characterized on the democracy cube. The current framework seems to suggest that "advising" is a midpoint arrangement because it stops short of obtaining joint approval: an entity like a planning agency obtains input from participants, considers this input for decision-making, but does not revisit stakeholders once it has formulated a decision. Because the process ends without validation from the participants, authority for final decision-making is not shared. What may be worth considering in future studies is whether multiple iterations of this cycle (in other words, multiple advising sessions) can actually result in an outcome that is owned by participants. This might suggest that there are times that "advising" and "cogovernance partnerships", presented here as separate and distinct arrangements, may actually involve the same practice, except that cogovernance partnerships involves multiple cycles of engagement with the participant, which allows them to shape decision-making. If this is the case, then advising may have greater potential for participation than is depicted here.

5 CONCLUSIONS

In this study, we have made a number of contributions. First, we have explored links between the fields of governance and IT, by drawing on a governance framework for exploring participatoriness in the IT planning process. Second, we have used the democracy cube to identify specific practices that contribute to participatoriness or nonparticipatoriness in IT planning, summarized below:

Dimension	Participatory Practices in IT Planning	Non-Participatory Practices in IT Planning
Participant selection	Broadening the pool of planning participants to include non-experts Broadening the pool of planning participants to include stakeholders who are not users	Stopping at 30 participants, which makes representativeness debatable
Communication and decision-making	Allow participants to give feedback Keep the agenda broad (multifaceted) Aggregate inputs so that no data is lost	Not allowing for deliberation
Power and authority	Allow participants to provide advice in the form of concerns	Losing actual concerns in the process of translating these into an IT strategy Limiting input to discussions on problems but not on solution

Table 4. Participative and nonparticipative practices in IT planning.

Finally, we have also identified ways that the democracy cube could potentially be enhanced. In terms of participant selection, future work can explore how strategic selection of a few small case sites could provide the benefits of representative sampling. In terms of communication and decision-making, future research could explore the value of alternatives to the deliberative ideal. Finally, in terms of power and authority, future work can explore how an arrangement like advising, currently limited in terms of participatoriness, can be redesigned to make the approach more democratic.

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